

Application Serial No. 10/553,645  
Amendment dated July 1, 2009  
Reply to Office Action dated April 2, 2009

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (currently amended): High-pressure coupling device for directing media through quick-change systems in a machine table, ~~for example such as oil, water, gas, fats and similar media,~~ wherein the high-pressure coupling device comprises: a coupling device bottom part and a coupling device top part, the coupling bottom part including a firmly anchored, rigid valve screw element which creates a sealing effect for delivering the ~~medium~~ media and a movable spring-loaded gate valve socket element while the top coupling part is provided with a movable spring-loaded valve disk element that creates a sealing effect for [[the]] a side of the coupling device, device which is to be supplied with high-pressure medium, together with a rigid valve body element, such that a rigid valve element of one of the coupling parts actuates the spring-loaded valve element of the opposite coupling part in the high-pressure coupling device in a valve-actuating manner to form a valve arrangement when the bottom coupling part and the top coupling part are joined.

Claim 2 (previously presented): High pressure coupling device in accordance with Claim 1, wherein the valve arrangement between the coupling bottom part and the coupling top part is synchronous and positively controlled.

Claim 3 (currently amended): High pressure coupling device in accordance with Claim 2, including means for positive control of the valve arrangement such that the spring-loaded valve elements are actuated in such a way from the respective opposite part of the valve elements that the valve elements do not begin oscillating as a result of the medium flow passing through.

Claim 4 (previously presented): High pressure coupling device in accordance with Claim 3, wherein flow of the medium keeps the spring loaded elements of the high-pressure coupling device in check, without moving them against a spring load.

Claim 5 (previously presented): High pressure coupling device in accordance with Claim 3, wherein the valve screw in the bottom part with an associated threaded bolt is screwed into an associated tapped hole in the coupling device bottom part and thus forms a stationary and constant abutment for medium flow permeating the high pressure coupling device.

Claim 6 (previously presented): High pressure coupling device in accordance with Claim 1, wherein the gate valve socket in the valve bottom part is initially tensioned in the direction toward its off position with a relatively weakly mounted valve spring, whereby this spring only has to overcome the friction of a gasket at an inner area of a pipe body, in order to place the gate valve socket in its off position.

Claim 7 (previously presented): High pressure coupling device in accordance with Claim 1, wherein in the region of a ring extension of the gate valve socket a transverse vent hole is present.

Claim 8 (currently amended): High pressure coupling device in accordance with Claim 7, wherein the gate valve socket is sealed via a [[long]] sealing path, once in the region of its ring extension directed radially outward and secondly in [[its]] a radially offset cylindrical region, in which a gasket is arranged.

Claim 9 (currently amended): High pressure coupling device in accordance with Claim 1, wherein the coupling device top part consists essentially of a valve flange which is fixed in an associated recess to an underside of a workpiece pallet by means of screws, so that ~~an~~ excellent centering of the coupling device top part in this recess is achieved.

Claim 10 (previously presented): High pressure coupling device in accordance with Claim 1, wherein the spring-loaded valve element in the coupling device top part can be optionally blocked or released, as a result of which the high-pressure coupling device can be operated either positively controlled or non-positively controlled.

Application Serial No. 10/553,645  
Amendment dated July 1, 2009  
Reply to Office Action dated April 2, 2009

Claim 11 (previously presented): High pressure coupling device in accordance with Claim 1, wherein the coupling device bottom part is fastened with clamp screws screwed in directly through a cover into the machine table.

Claim 12 (previously presented): High pressure coupling device in accordance with Claim 11, wherein each of the screws is connected with a clamping shoe, which positively engages in an associated pipe body of the coupling device bottom part and with it clamps the coupling device bottom part on the machine table.

Claim 13 (previously presented): High pressure coupling device in accordance with Claim 12, wherein two said clamp screws with eccentrically rotating clamping shoes hold the pipe body.

Claim 14 (previously presented): High pressure coupling device in accordance with Claim 13, wherein a further clamp screw includes a circular disk, which also engages in an associated groove on the periphery of the pipe body of the coupling device bottom part.

Claim 15 (previously presented): High pressure coupling device in accordance with Claim 14, wherein each said clamping shoe can be freely rotated by means of a corresponding screw and with it can be disengaged from its engaged position with the associated groove in the pipe body and vice versa.

Claim 16 (previously presented): High pressure coupling device in accordance with Claim 11, wherein the entire coupling device bottom part is installed in a recess in the machine table that is countersunk and open so that a pipe body belonging to the coupling device bottom part fits positively in this recess with corresponding stop edges and is protected from corresponding deformation.

Claim 17 (previously presented): High pressure coupling device in accordance with Claim 16, wherein a corresponding radial clearance to the associated peripheral surfaces in a recess

Application Serial No. 10/553,645  
Amendment dated July 1, 2009  
Reply to Office Action dated April 2, 2009

in the cover exists, so that no transmission of load takes place there between the pipe body of the coupling device bottom part to the cover.

Claim 18 (previously presented): High pressure coupling device in accordance with Claim 17, wherein a thermal expansion clearance is provided for the pipe body in the region of the recess in the cover.

Claim 19 (previously presented): High pressure coupling device in accordance with Claim 18, including a gap between the coupling device bottom part and the recess in the cover of a rapid-action clamping cylinder that prevents an undesirable heat transfer to this cover and with it also undesirable deformation action on the rapid-action clamping cylinder, which otherwise could become distorted and cause inaccurate machining on workpieces clamped on a workpiece pallet.

Claim 20 (previously presented): High pressure coupling device in accordance with Claim 19, wherein the gap is cooled with blast air in order to prevent a thermal expansion of the coupling device bottom part.

Claim 21 (previously presented): High pressure coupling device in accordance with Claim 1, wherein a front portion of the valve body element in the coupling device top part protruding from a recess bears a gasket on its front with which it rests upon an associated sealing body on the coupling device bottom part in a sealing manner.

Claim 22 (previously presented): High pressure coupling device in accordance with Claim 1, wherein the valve socket element can be moved in a valve flange.

Claim 23 (previously presented): High pressure coupling device in accordance with Claim 22, including a valve block whereby the path of displacement of the valve body element can be blocked, so that said valve body element is continuously held in its extended position.

Application Serial No. 10/553,645  
Amendment dated July 1, 2009  
Reply to Office Action dated April 2, 2009

Claim 24 (previously presented): High pressure coupling device in accordance with Claim 23, wherein in order to achieve a blocking of the valve body element a cross hole is arranged in a flange, in which a pinion is pivoted, which includes an actuating opening for engagement of a wrench.

Claim 25 (previously presented): High pressure coupling device in accordance with Claim 24, wherein the pinion combs with a rack which can be moved in the region of a transverse slot in the valve flange.

Claim 26 (previously presented): High pressure coupling device in accordance with Claim 25, wherein the rotary actuation of the pinion the rack is moved axially as a result of which an end of the rack either engages or disengages with the valve body element.

Claim 27 (previously presented): High pressure coupling device in accordance with Claim 26, wherein in the engaged position of the end of the rack the valve body element is blocked in its front displacement position and can no longer be moved against the force of a spring engaging the valve body element.

Claim 28 (previously presented): High pressure coupling device in accordance with Claim 24, wherein the pinion bears against gaskets at its two opposing ends in order to prevent an escape of pressure medium from an associated region.

Claim 29 (previously presented): High pressure coupling device in accordance with Claim 23, wherein when a valve block is disengaged, the valve body element can spring back and there is no risk of damage when a workpiece pallet with the coupling device top part is placed on a smooth surface on the machine table.

Claim 30 (previously presented): High pressure coupling device in accordance with Claim 29, wherein when the valve block is engaged then a ring extension of the valve body element extends out of a recess of a valve flange and hangs over this area, so that in the case of high load change impacts caused by corresponding impacts in the medium flow the valve body

Application Serial No. 10/553,645  
Amendment dated July 1, 2009  
Reply to Office Action dated April 2, 2009

element can no longer lift with its gasket at the opposite surface in the coupling bottom part, as a result of which a positive locking is guaranteed, which works without spring force and therefore cannot vibrate and result in self-destruction.

Claim 31 (previously presented): High pressure coupling device in accordance with Claim 1, wherein in the coupling device top part in a transition region between a tappet and a bolt of larger diameter a vertical stop edge is constructed, so that an absolute straight line guide of the entire valve body element in an associated bore hole is given; as a result preventing the valve body element from jamming or hammering when high pressure change impacts take place in a central recess.

Claim 32 (previously presented): High pressure coupling device in accordance with Claim 1, wherein the valve screw in the coupling device bottom part has a centering shoulder, with which the valve screw in the a machine table can be centered.

Claim 33 (previously presented): High pressure coupling device in accordance with Claim 1, wherein the high-pressure coupling device in the machine table is arranged outside of a central recess for a rapid-action clamping cylinder, and in particular does not exhibit any load-transferring connection whatsoever to a cover of the rapid-action clamping cylinder.